

## CLAIMS

We claim:

1. A wafer holding device adapted for use in an apparatus for treating a principal surface of a semiconductor wafer under a predetermined heating condition while the back surface of said principal surface of the wafer is held by the device at a predetermined position within a chamber of said apparatus, said device comprising :

a susceptor formed in the surface thereof with a wafer loading area for supporting the back surface of the wafer, and

a plurality of support pins each arranged at one of four equiangularly spaced positions along a circumference of at least one concentric circle in said wafer loading area so as to protrude from the surface of said susceptor, each of said support pins including a resilient mechanism.

2. The wafer holding device according to claim 1, wherein said support pins are disposed in the positions which support the wafer along the crystal orientation  $\langle 110 \rangle$  with respect to the crystal plane (100) of the wafer.

3. The wafer holding device according to claim 1, wherein said resilient mechanism includes a plurality of flexible members each supporting one of said support pins.

4. The wafer holding device according to claim 3, wherein each said flexible member comprises a leaf spring made from quartz.

5. (Amended) A wafer holding device adapted for use in an apparatus for treating a principal surface of a semiconductor wafer under a predetermined heating condition while the back surface of said principal surface of the wafer is

vertically or obliquely held by the device at a predetermined position within a chamber of said apparatus, said device comprising:

Cont  
Sub  
B1  
a substrate holder for supporting the back surface of said wafer thereon,  
rotating means for circumferentially rotating said wafer along with the  
substrate holder, and  
a plurality of holding members provided on said substrate holder and  
placed in contact with the peripheral edge of said wafer loaded thereon, said  
holding members being adapted to act against said peripheral edge of said wafer  
to exert a holding force toward the center of said wafer in such degree that said  
wafer is prevented from coming off when said wafer is rotated along said  
substrate holder by said rotating means.

---

6. The wafer holding device according to claim 5, wherein said  
substrate holder includes an inner wall surface disposed to face the peripheral  
edge of said wafer loaded on said substrate holder, and wherein said holding  
means includes a plurality of contact members for contacting with the peripheral  
edge of said wafer and a plurality of energizing members disposed on said inner  
wall surface to apply an energizing force tending toward a center of said wafer to  
said contact members.

Sub  
B1  
7. The wafer holding device according to claim 5, wherein said  
substrate holder includes an inner wall surface disposed to face the peripheral  
edge of said wafer loaded on said substrate holder, and wherein said holding  
means includes inner-wall contact means including a part or a whole of a plurality  
of sections forming said inner wall surface and energizing means for energizing  
said inner-wall contact means toward a center of said wafer.

8. (Amended) A wafer holding device adapted for use in an apparatus  
for treating a principal surface of a semiconductor wafer under a predetermined

heating condition while the back surface of said principal surface of the wafer is vertically or obliquely held by the device at a predetermined position within a chamber of said apparatus, said device comprising:

a substrate holder for supporting the back surface of said wafer thereon;  
and

rotating means for circumferentially rotating said wafer along with the substrate holder,

Sub 17  
said substrate holder including periphery contact means for contacting with at least a portion of the back surface at the peripheral edge of said wafer loaded on said substrate holder,

said holding means including clamping means for contacting with a portion of the principal surface at the peripheral edge of said wafer loaded on said substrate holder and for clamping and holding said wafer between the same and said periphery contact means.